UNITED STATES AIR FORCE

OCCUPATIONAL SURVEY REPORT

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AIRBORNE COMPUTER SYSTEMS

AFSC 118X0

AFPT 90-118-840

JUNE 1989

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OCCUPATIONAL ANALYSIS PROGRAM
USAF OCCUPATIONAL MEASUREMENT CENTER
AIR TRAINING COMMAND
RANDOLPH AFB, TEXAS 78150-5000

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PREFACE

This report presents the results of the Air Force occupational survey of the Airborne Computer Systems career ladder (AFSC 118X0). This survey was requested by HQ TAC/DOY. Priority for accomplishing this occupational survey report was established by the Occupational Survey Report (OSR) Priority Working Group (PWG) of the USAF Occupational Measurement Center (USAFOMC).

Authority for conducting occupational surveys is contained in AFR 35-2. Computer printouts used in this report are available for use by operations and training officials upon request.

Mr Don Cochran developed the survey instrument, Ms Becky Hernandez provided computer programming support, and Mr Richard Ramos provided administrative support. Lieutenant Kevin Osten and Dr David E. Williams analyzed the data and wrote the final report. This report has been reviewed and approved for release by Lieutenant Colonel Charles D. Gorman, Chief, Airman Analysis Branch, Occupational Analysis Division, USAF Occupational Measurement Center.

Copies of this report are distributed to Air Staff sections, major commands, and other interested training and management personnel. Additional copies are available upon request to the USAF Occupational Measurement Center, Attention: Chief, Occupational Analysis Division (OMY), Randolph AFB, Texas 78150-5000.

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SUMMARY OF RESULTS

1. <u>Survey Coverage</u>: A total of 118 members of the Airborne Computer Systems career ladder, representing 69 percent of the assigned strength, were surveyed worldwide and across all user commands. The sample included 3-, 5-, and 7-skill levels and was representative in terms of major commands (MAJCOM) and paygrade groups.

2. <u>Specialty Jobs</u>: AFSC 118X0 personnel were found to be performing a function directly related to airborne computer systems onboard E-3A aircraft. One major job cluster and two variations were identified in this analysis. This cluster and variations relate primarily to maintaining data processing and data display systems, performing general in-flight tasks, inspections or procedures, premission and postmission functions, general administrative and supply functions, and monitoring and operating electronic computer systems.

3. <u>Career Ladder Progression</u>: The AFSC 118X0 career ladder follows the usual pattern of career progression up through the 7-skill level. At the 3- and 5-skill levels, personnel are performing mostly technical tasks, while at the 7-skill level, personnel perform both technical and supervisory tasks. The AFR 39-1 Specialty Descriptions for this career ladder are broad, but accurately reflect the jobs and tasks performed by personnel at each skill level.

4. <u>Training Analysis</u>: The STS for AFSC 118X0 is generally supported by OSR data. There are, however, two nonsupported paragraphs which need review. In addition, several tasks not referenced to the STS should be reviewed for possible inclusion. The POI for the basic 3AQR11830 course and E3000 BQOMX advanced basic course are also generally supported by OSR data. However, unreferenced tasks were noted and recommended for review.

5. <u>Implications</u>: The AFSC 118X0 career ladder is a relatively new career ladder created in 1984. This career ladder grew out of the former AFSC 305X4, Electronic Computer and Switching Systems career ladder, and currently has less than 200 members. Their responsibilities are generally similar to the former DAFSC 305X4 T-shred. Personnel are relatively satisfied with their jobs and for the most part, perceive their talents and training as being adequately utilized. Good career ladder progression is noted. Overseas personnel perform primarily the same job as CONUS personnel. The STS is basically supported, although two unsupported paragraphs and several unreferenced tasks should be reviewed. The basic AQR course at Keesler AFB and the advanced basic course at Tinker AFB are generally supported by OSR data in the performance areas having tasks matched to them, although, as with the STS, a review of nonreferenced tasks is recommended.

OCCUPATIONAL SURVEY REPORT
AIRBORNE COMPUTER SYSTEMS CAREER LADDER
(AFSC 118X0)

INTRODUCTION

This report presents the results of an occupational survey of the Airborne Computer Systems career ladder (AFSC 118X0). This survey was completed by the Occupational Analysis Division, USAF Occupational Measurement Center, in April 1989. The present survey was requested by HQ TAC/DOY, Langley AFB VA, to secure job and task data to be used in support of Specialty Training Standard (STS), Plan of Instruction (POI), Career Development Course, and Specialty Knowledge Test development, future programming initiatives, and to update other general aspects of the career ladder since the separation of this specialty from the Electronic Computer and Switching Systems specialty (AFSC 305X4) in October 1984.

Background

Prior to the creation of the current AFSC 118X0 in October 1984, these personnel held AFSC 305X4, Electronic Computer and Switching Systems career ladder. Those tasks specifically related to AFSC 118X0 were identified and transferred to the new AFSC 118X0 career ladder. This is the first Occupational Survey conducted for this career ladder since its creation.

As outlined in the AFR 39-1 Specialty Descriptions, AFSC 118X0 personnel perform visual inspections, operate, maintain, and repair airborne computer equipment, including processing, display, testing, and ancillary systems. They also perform preflight and postflight inspections on the E-3A aircraft computer displays and associated equipment and systems.

Entry into this career ladder is from basic military training school through a Category A training program. Course training for the airborne computer systems personnel includes a 10-day Enlisted Aircrew Undergraduate Course at Sheppard AFB TX. They are then sent to Keesler AFB MS to attend a 29.2-week Electronic Principles and Electronic Computer and Switching Systems and Airborne Computer Systems Course (E3AQR11830-001). Upon completion of this course, these members then attend a 13.4-week E-3A Airborne Computer Display Maintenance Technician (CDMT) Course (E3000BQOMX) at Tinker AFB OK. This course trains the CDMTs to perform the operational and inflight maintenance tasks on the E-3A AWACS. This is an AFSC-awarding course; therefore, members who complete this course are so awarded. Once training is complete, and AFSC 118X0 personnel are assigned to operational locations, they receive more job-related training through the on-the-job training (OJT) program, field training detachment (FTD) courses, and other localized currency training. A score of 67 in the Electronics category of the Armed Services Vocational Aptitude Battery is required for entry into this specialty.

SURVEY METHODOLOGY

Inventory Development

Data for this survey were collected using USAF Job Inventory, AFPT 90-118-840, dated February 1988. The inventory developer reviewed pertinent career ladder documents and the previous AFSC 305X4 inventory (April 1982) and OSR (June 1984) to prepare a tentative task list. This task list was then validated through personal interviews with 12 subject-matter experts from 6 operational units at Tinker AFB OK. A background section was constructed, containing questions regarding incumbents' grade, duty title, total time in career field, total time in present job, total active federal military service, job satisfaction data, and other career field-related items. Units visited to validate the task list were determined primarily from recommendations from career ladder functional managers and training personnel. These units were chosen to ensure that representative missions performed within the AFSC 118X0 career ladder were adequately covered. A list of units visited were:

552d Tactical Training Squadron

552d Airborne Warning and Control Squadron

963d Airborne Warning and Control Squadron

964th Airborne Warning and Control Squadron

965th Airborne Warning and Control Squadron

966th Airborne Warning and Control Squadron

The resulting inventory contained 403 tasks grouped into 15 duty headings. There are also 13 background questions.

Survey Administration

From March through November 1988, Consolidated Base Personnel Offices at operational bases worldwide administered the inventory booklets to all eligible 3-, 5-, and 7-skill level DAFSC 118X0 personnel. Participants were selected from a computer-generated mailing list provided by the Human Resources Laboratory. Those not receiving booklets included those in transition for a permanent change of station, members retiring at the time of the survey, those hospitalized, and those who had not been in their current job for at least 6 weeks.

All individuals who filled out an inventory booklet first completed an identification and background information section. Next, they went through the booklet and checked each task performed in their current job. After checking all tasks performed, the respondents rated each of these tasks on a

9-point scale reflecting relative time spent on each task compared to all other tasks. Ratings ranged from 1 (indicating a very small amount of time spent) to 9 (indicating a very large amount of time spent). To determine relative time spent for each task checked by the respondent, the sum of a respondent's ratings was assumed to account for 100 percent of his or her time spent on the job. All respondents' ratings were added together and then each rating was divided by the sum of all responses. Then, this quotient was multiplied by 100 to obtain the relative percent time spent for each task. This procedure provided a basis for comparing tasks not only in terms of percent members performing, but also in terms of relative percent time spent on tasks and groups of tasks.

Survey Sample

Participants in the survey were carefully selected to ensure there was a proportional representation across major command (MAJCOM) and paygrade groups. Table 1 shows the percentage distribution, by MAJCOM, of assigned personnel in the career ladder as of March 1988. Also shown in this table is the percentage distribution by MAJCOM in the final survey sample. Table 2 shows the survey sample representation across paygrades. As these tables indicate, survey representation by MAJCOM and paygrade was very good. The 118 respondents included in the final survey sample represent 69 percent of the total 172 DAFSC 118X0 personnel assigned.

Data Processing and Analysis

Once job inventories are returned from the field, the responses to both background and task information are checked for completeness and the data are then entered into the computer. Specialized computer analysis programs, called Comprehensive Occupational Data Analysis Programs (CODAP), are then applied to the data and various computer products are generated to aid in data analysis.

Computer-generated job descriptions are produced for groups of respondents including DAFSC, time in service (TAFMS), time in career field, MAJCOMs, CONUS/Overseas groups, as well as Specialty Job groups. These descriptions include such information as percent members performing each task and the average percent time spent on each task.

Task Factor Administration

In addition to completing a job inventory, selected senior AFSC 118X0 personnel were asked to complete a second booklet for training emphasis (TE). The normal process involves selecting another group to complete a third booklet for task difficulty (TD); however, due to the small numbers of senior personnel available, no TD ratings were collected for use in this study.

TABLE 1

COMMAND REPRESENTATION OF AFSC 118X0 SURVEY SAMPLE

COMMAND	PERCENT OF ASSIGNED*	PERCENT OF SAMPLE
TAC	91	92
AF ELEMENT EUR	8	6
AF ELEMENT OTHER	1	2

TOTAL PERSONNEL ASSIGNED: 172
TOTAL PERSONNEL ELIGIBLE FOR SURVEY: 153
TOTAL PERSONNEL IN SAMPLE: 118
PERCENT OF ASSIGNED IN SAMPLE: 69%
PERCENT OF ELGIBLE IN SAMPLE: 77%

* As of March 1988

TABLE 2

PAYGRADE REPRESENTATION OF AFSC 118X0 SURVEY SAMPLE

PAYGRADE	PERCENT OF ASSIGNED*	PERCENT OF SAMPLE
E-7	9	12
E-6	14	14
E-5	22	22
E-4	27	26
E-3	26	25
E-2	-	-
E-1	-	-

- Indicates less than 1 percent
* As of March 1988

NOTE: Columns may not add to 100 percent due to rounding

Training Emphasis (TE). A group of 35 senior technicians were selected to complete a TE booklet. This involved rating the inventory tasks on a 10-point scale from 0 (no training required) to 9 (extremely high training emphasis). The interrater reliability for the 35 raters was acceptable. Training emphasis is a rating of which tasks in the opinion of the raters require structured training for first-term personnel. Structured training is defined as training provided at the resident technical school, FTD, mobile training teams (MTT), formal OJT, or other organized training methods.

When used in conjunction with other factors, such as percent members performing and TD ratings (unavailable), TE data provide insight into what the training requirements of the career field are. For the AFSC 118X0 career ladder, the average TE rating is 4.42, and the standard deviation is 2.39. Tasks rated 6.81 or higher are considered to be the primary tasks to be considered for formal training programs.

SPECIALTY JOBS
(Career Ladder Structure)

An important part of each occupational survey is to examine the overall job structure that exists within a career ladder, as well as how these jobs relate to each other. This is accomplished by examining what job incumbents indicate they are actually doing rather than what the official career field documents dictate they should be doing. The automated job clustering program inherent in the CODAP system plays an integral part in the analysis of the actual job structure for a career ladder. Job groups are formed based on similarity of tasks performed and relative time spent performing those tasks. Starting with career ladder structure data, a thorough examination of the accuracy and completeness of career ladder documents (AFR 39-1 Specialty Descriptions and Specialty Training Standards and Plans of Instruction) is conducted and an understanding of current utilization patterns is formulated.

The occupational analysis process consists of determining the functional job structure of career ladder personnel in terms of clusters, job types, and independent job types. A job type is a group of individuals who perform many of the same tasks and spend similar amounts of time performing them. When there is a substantial degree of similarity between different job types, they are grouped together and labeled clusters. Finally, there are often cases of specialized job types that are too dissimilar to be grouped into any cluster. These unique groups are called independent job types.

Overview Of Specialty Jobs

The job structure of the Airborne Computer System career ladder was determined by a job type analysis of survey data from 118 respondents. This analysis identified one cluster with two variations, as listed below. The stage (STG) number shown beside the title is a reference to computer-printed information. The number of personnel in the job group (N) is also shown.

I. COMPUTER DISPLAY MAINTENANCE PERSONNEL CLUSTER (STG002, N=117)

    A. Supervisors/Trainers Variation (STG038, N=21)
    B. Computer Display (CD) Instructors Variation (STG028, N=5)

     The respondents forming this group account for 99 percent of the survey
sample. The remaining 1 percent represents one respondent whose responsibili-
ties differ enough from other career ladder members that he did not group with
any of the other identified specialty jobs.

Group Descriptions

     The following paragraphs contain brief descriptions of the cluster and
job variations identified within the AFSC 118X0 career ladder. Relative per-
cent time spent on duties for each group is presented in Table 3, while Table
4 reflects selected background data for each group. The discussion presented
is limited to a brief description of the respondents who comprise the jobs and
examples of tasks performed. Extensive lists of representative tasks per-
formed by each specialty job discussed below are provided in Appendix A.

     I. COMPUTER DISPLAY MAINTENANCE PERSONNEL CLUSTER (STG002, N=117). The
117 members of this group comprise 99 percent of the survey sample. These
personnel are primarily responsible for inspecting, maintaining, operating,
and repairing airborne computer equipment to include processing, displaying
and testing ancillary systems. A vital part of their job involves performing
preflight and postflight inspections on airborne computer displays and associ-
ated equipment and systems. These personnel spend a majority (57 percent) of
their job time on tasks related to performing general in-flight tasks, per-
forming preflight inspections or procedures, maintaining data processing sys-
tems and maintaining data display systems (see Table 3). Twenty-five percent
of these personnel are assigned overseas. They perform an average of 277
tasks. Common tasks include:

          monitor operator computer console (OCC)
          perform MTT tape loading procedures
          operate hardware and software within limitations
          monitor digital display indicator (DCI)
          load programs using magnetic tapes
          monitor emergency warning indicators
          load and operate airborne operational computer programs
          clean SDC switches
          perform mission planning
          maintain mission logs, such as tape logs, computer
            logs, and onboard monitor and maintenance (OBTM&M) logs
          load programs using OCC panel
          load programs using DDI and keyboard
          monitor cooling indicators
          operate DDI keyboard, other than when loading programs

TABLE 3

AVERAGE TIME SPENT ON DUTIES BY CAREER LADDER JOBS

JOB GROUPS	CDM PERSONNEL CLUSTER	JOB VARIATIONS	
		SUPERVISOR/ TRAINER	INSTRUCTOR
A. ORGANIZING AND PLANNING	2	4	3
B. DIRECTING AN IMPLEMENTING	2	4	2
C. INSPECTING AND EVALUATING	2	3	3
D. TRAINING	4	9	8
E. PERFORMING GENERAL ADMINISTRATIVE AND SUPPLY TASKS	4	4	5
F. PERFORMING GENERAL IN-FLIGHT TASKS	10	8	12
G. MONITORING AND OPERATING ELECTRONIC COMPUTER SYSTEMS	8	6	10
H. PERFORMING PREMISSION AND POSTMISSION TASKS	6	5	7
I. PERFORMING PREFLIGHT INSPECTIONS OR PROCEDURES	10	8	7
J. MAINTAINING DATA PROCESSING SYSTEMS	22	20	17
K. MAINTAINING DATA DISPLAY SYSTEMS	15	15	13
L. MAINTAINING ELECTRONIC SYSTEM TEST SET GROUPS (ESTSG)	3	3	2
M. MAINTAINING POWER DISTRIBUTION SYSTEMS	3	4	3
N. MAINTAINING COOLING DISTRIBUTION SYSTEMS	4	4	3
O. PERFORMING MOBILITY TASKS	5	3	5

TABLE 4

SELECTED BACKGROUND DATA FOR 118X0 CAREER LADDER JOBS

	CDM PERSONNEL CLUSTER	JOB VARIATIONS	
		SUPERVISORS TRAINERS	INSTRUCTORS
NUMBER IN GROUP	117	21	5
PERCENT OF TOTAL SAMPLE	99%	18%	4%
PERCENT IN CONUS	75%	29%	40%
DAFSC DISTRIBUTION (PERCENT RESPONDING):			
11830	22%	0%	0%
11850	41%	38%	60%
11870	34%	57%	40%
AVERAGE MONTHS IN CAREER FIELD	50	59	43
AVERAGE MONTHS IN SERVICE	95	123	97
PERCENT FIRST ENLISTMENT	39%	10%	20%
AVERAGE TASKS PERFORMED	277	327	306
PREDOMINANT MAJCOM ASSIGNMENT	TAC	TAC	TAC
AVERAGE NUMBER SUPERVISED	1	2	1

NOTE: Figures not exact due to rounding

        examine historical data for recurring equipment problems
        inventory mission software
        debrief ground maintenance personnel

These maintenance personnel average 95 months in the military, 50 months in the career field, and 39 percent are in their first enlistment.

This cluster contains two job variations--Supervisors/Trainers and Computer Display Instructors. There are only slight differences in tasks performed by these variations. The discussions of the two variations are presented below:

A.   Supervisor/Trainers Variation. This group contains 21 members of the above described cluster who performed tasks similar to other cluster members, but spent slightly more of their job time on tasks related to supervision and training. They average 123 months in the career ladder and perform an average of 327 tasks. Examples of tasks which they spend slightly more of their job time on are presented below:

        conduct in-flight training
        supervise Apprentice Airborne Computer Systems Specialists
         (AFSC 11830)
        conduct academic course training
        make entry of training records
        evaluate personnel to determine needs for training
        perform mission planning

B.   Computer Display Instructors. This small variation contains individuals who performed the Computer Display functions required of career ladder personnel, but spend slightly more job time working as a CD instructor. They perform an average of 306 tasks. Examples of tasks which they spent slightly more of their job time on are presented below:

        examine historical data for recurring problems
        maintain individual flight publications
        make entry in training records
        plan training
        counsel trainees on training progress
        procure training aids, space, or equipment

Supervisor/Trainers perform slightly more supervisory and training functions than other members of the cluster, while CD Instructors perform more tasks related to computer display instruction.

ANALYSIS OF DAFSC GROUPS

In addition to examining the job structure of the Airborne Computer Systems specialty (as discussed in the Specialty Jobs section), this report also includes an analysis of tasks performed at each skill level. This information can be used to evaluate whether personnel are utilized in the manner specified by the specialty descriptions (AFR 39-1) and can serve as one basis for considering changes to current utilization policies and training programs.

A comparison of duties and tasks performed between 3- and 5-skill level personnel indicates the jobs they perform are essentially the same; therefore, they are discussed as one group (AFSC 11830/11850). To give some indications of how skill level groups are working within this ladder, the relative time spent on each duty by skill level groups is presented in Table 5.

As can be seen from the table, as an individual progresses through the skill levels, slightly more supervisory and administrative responsibilities are assumed. Also, in this progression, there is a slight decline in the amount of time spent performing technical duties as skill levels increase. More detailed descriptions relative to how skill level groups are working and the differences, if any, between jobs they perform are presented below.

Skill-Level Descriptions

DAFSC 11830/11850. The 74 3- and 5-skill level personnel represent 63 percent of the sample. They have an average of 53 months in the military and perform an average of 265 tasks. The majority of this group's time is divided among the general duties of maintaining data processing and data display systems, performing preflight inspections, and performing general in-flight tasks (see Table 5). Supervisory-type duties consume only 7 percent of their time. A representative task list is presented in Table 6. Seventy-two percent of these members are in their first enlistment.

DAFSC 11870. The 41 7-skill level members comprise 34 percent of the AFSC 118X0 career ladder. They have an average of 160 months in the military and perform an average of 294 tasks. Like the DAFSC 11830/50 personnel, the majority of their job time (53 percent) is divided among the general duty areas of maintaining data processing and data display systems, performing general in-flight tasks, and performing preflight inspections and procedures (see Table 5). Supervisory-type duties consume 15 percent of their time, slightly more than the DAFSC 11830/50 group. Table 7 presents tasks commonly performed by DAFSC 11870 personnel. Tasks which best differentiate between 7-skill level and 3- and 5-skill level personnel are supervisory-related tasks. Examples of those tasks differences are presented in Table 8. Ninety percent of this skill level are in their third or subsequent enlistment.

TABLE 5

AVERAGE TIME SPENT ON DUTIES BY DAFSC GROUPS

JOB GROUPS	DAFSC 11830/ 11850 (N=74)	DAFSC 11870 (N=41)
A. ORGANIZING AND PLANNING	2	3
B. DIRECTING AND IMPLEMENTING	1	3
C. INSPECTING AND EVALUATING	1	3
D. TRAINING	3	6
E. PERFORMING GENERAL ADMINISTRATIVE AND SUPPLY TASKS	4	6
F. PERFORMING GENERAL IN-FLIGHT TASKS	11	9
G. MONITORING AND OPERATING ELECTRONIC COMPUTER SYSTEMS	9	7
H. PERFORMING PREMISSION AND POSTMISSION TASKS	6	5
I. PERFORMING PREFLIGHT INSPECTIONS OR PROCEDURES	11	9
J. MAINTAINING DATA PROCESSING SYSTEMS	23	21
K. MAINTAINING DATA DISPLAY SYSTEMS	15	14
L. MAINTAINING ELECTRONIC SYSTEM TEST SET GROUPS (ESTSG)	3	3
M. MAINTAINING POWER DISTRIBUTION SYSTEMS	3	3
N. MAINTAINING COOLING DISTRIBUTION SYSTEMS	3	4
O. PERFORMING MOBILITY TASKS	5	4

TABLE 6

EXAMPLES OF TASKS PERFORMED BY
DAFSC 11830/50 PERSONNEL
(N=74)

TASKS	PERCENT MEMBERS PERFORMING
F155 OPERATE HARDWARE AND SOFTWARE WITHIN LIMITATIONS	100
G182 MONITOR OPERATOR COMPUTER CONSOLE (OCC)	100
H201 PERFORM MISSION PLANNING	100
J286 LOAD AND OPERATE DMP	100
F140 COORDINATE COMPUTER STATUS WITH MISSION CREW	100
F151 LOAD PROGRAMS USING MAGNETIC TAPES	100
F156 PERFORM AIRCREW EMERGENCY PROCEDURES	100
G181 MONITOR EMERGENCY WARNING INDICATORS	100
H191 DEBRIEF GROUND MAINTENANCE PERSONNEL	100
H192 EXAMINE HISTORICAL DATA FOR RECURRING EQUIPMENT PROBLEMS	100
H194 INVENTORY MISSION SOFTWARE	100
H202 PERFORM PREMISSION REQUIREMENTS, SUCH AS REVIEWING FLIGHT CREW INFORMATION FILE (FCIF) & ANNOTATING FLIGHT ORDERS	100
I208 PERFORM PREFLIGHT INSPECTIONS OF CONTROL POWER SUPPLY (CPS)	100
I209 PERFORM PREFLIGHT INSPECTIONS OF COOLING SYSTEM INDICATORS	100
I212 PERFORM PREFLIGHT INSPECTIONS OF DIGITAL COMPUTER RACK	100
I213 PERFORM PREFLIGHT INSPECTIONS OF DIGITAL DISPLAY INDICATOR (DDI)	100
I215 PERFORM PREFLIGHT INSPECTIONS OF ELECTRONIC COMMAND SIGNALS PROGRAMMER (ECSP)	100
I218 PERFORM PREFLIGHT INSPECTIONS OF IN-FLIGHT SPARES, TECHNICAL ORDERS, AND TEMPLATES	100
I222 PERFORM PREFLIGHT INSPECTIONS OF OPERATOR COMPUTER CONTROL (OCC)	100
I223 PERFORM PREFLIGHT INSPECTIONS OF OXYGEN AND SPECIAL AUDIO DISTRIBUTION SYSTEM PANELS	100
I224 PERFORM PREFLIGHT INSPECTIONS OF P-67 CIRCUIT BREAKER PANELS	100
I225 PERFORM PREFLIGHT INSPECTIONS OF PERIPHERAL RACK I	100
I226 PERFORM PREFLIGHT INSPECTIONS OF PERIPHERAL RACK II	100
I227 PERFORM PREFLIGHT INSPECTIONS OF SITUATION DISPLAY CONSOLE (SDC)	100
I228 PERFORM VISUAL INSPECTIONS OF CABLES OR CONNECTOR AIR	100
I229 SECURE MAGNETIC TAPE CASES ON AIRCRAFT	100
J235 DETECT FAULTS WITHIN COMPUTER ARITHMETIC UNITS (CAU) USING IFPP	100
J248 DETECT FAULTS WITHIN CPS USING OFF-LINE CPS/DMP	100
J251 DETECT FAULTS WITHIN DIGITAL MULTIPLEXER UNITS (DMX) USING IFPP	100
J253 DETECT FAULTS WITHIN DMX USING OFF-LINE DMP	100
J285 LOAD AND OPERATE CPS DMP	100

TABLE 7

EXAMPLES OF TASKS PERFORMED BY
DAFSC 11870 PERSONNEL
(N=41)

TASKS		PERCENT MEMBERS PERFORMING
F139	CLEAN MAGNETIC TAPE TRANSPORT (MTT) CONTACT SURFACES	98
F144	INTERPRET ON-LINE STATUS INDICATIONS FOR FAULT ISOLATION	98
F145	INTERPRET PROGRAM PRINTOUTS FOR FAULT ISOLATION	98
F147	INTERPRET VISUAL FAULT INDICATORS FOR FAULT ISOLATION	98
F150	LOAD PROGRAMS USING MAGNETIC DRUMS	98
F155	OPERATE HARDWARE AND SOFTWARE WITHIN LIMITATIONS	98
F160	PERFORM MTT TAPE LOADING PROCEDURES	98
G169	DETERMINE SOFTWARE REQUIREMENTS	98
G170	DISCRIMINATE BETWEEN HARDWARE AND SOFTWARE FAILURES	98
G182	MONITOR OPERATOR COMPUTER CONSOLE (OCC)	98
G188	OPERATE OCC PANEL	98
H195	OBTAIN OR TURN IN MISSION SOFTWARE AND SUPPORT DOCUMENTS	98
H201	PERFORM MISSION PLANNING	98
H205	REVIEW, ANNOTATE OR INITIATE AIRCRAFT FLIGHT OR MAINTENANCE RECORD FORMS, SUCH AS AFTO FORMS 781 SERIES	98
I206	PERFORM PREFLIGHT INSPECTIONS OF COMPUTER ARITHMETIC UNITS (CAU)	98
I211	PERFORM PREFLIGHT INSPECTIONS OF CORE MEMORY UNITS (CMU)	98
I212	PERFORM PREFLIGHT INSPECTIONS OF DIGITAL COMPUTER RACK (DCR)	98
I219	PERFORM PREFLIGHT INSPECTIONS OF LIFE SUPPORT EQUIPMENT	98
I220	PERFORM PREFLIGHT INSPECTIONS OF MAGNETIC TAPE TRANSPORT (MTT) AND LINE PRINTER (LP)	98
I222	PERFORM PREFLIGHT INSPECTIONS OF OPERATOR COMPUTER	98
J234	DETECT DCR FAULTS USING VISUAL FAULT INDICATORS	98
J268	ISOLATE FAULTS TO CCA/CCB	98
J269	ISOLATE FAULTS TO CMU	98
J283	ISOLATE FAULTS WITHIN PERIPHERAL RACK II TO FAILING MTT	98
J286	LOAD AND OPERATE DMP	98
K299	CLEAN SDC SWITCHES	98
K324	ISOLATE FAULTS TO DP	98
J268	ISOLATE FAULTS TO CCA/CCB	98

TABLE 8

TASKS WHICH BEST DIFFERENTIATE BETWEEN
DAFSC 11850/30 AND 11870 PERSONNEL

TASKS		DAFSC 11870 (N=41)	DAFSC 11850/50 (N=74)	DIFFERENCE
B41	SUPERVISE AIRBORNE COMPUTER SYSTEMS SPECIALIST (AFSC 11850)	16	61	-45
D89	EVALUATE TRAINING METHODS OR TECHNIQUES	15	59	-44
C53	EVALUATE PERSONNEL FOR COMPLIANCE WITH TECHNICAL ORDERS	15	56	-41
B38	INTERPRET POLICIES, DIRECTIVES, OR PROCEDURES FOR SUBORDINATES	23	63	-40
B26	COUNSEL PERSONNEL	28	68	-40
B24	CONDUCT BRIEFINGS	30	68	-38
D74	CONDUCT INSTRUCTOR UPGRADE TRAINING	7	44	-37
D86	EVALUATE INSTRUCTOR PERFORMANCE	8	44	-36
C66	WRITE APR	19	54	-35
D96	PREPARE LESSON PLANS	34	68	-34
E105	ANNOTATE CABINET, SAFE, OR ROOM SECURITY FORMS	12	46	-34
D87	EVALUATE PERSONNEL TO DETERMINE NEED FOR TRAINING	27	61	-34
D88	EVALUATE PROGRESS OF TRAINEES	27	59	-32

Summary

     As members of this highly homogeneous career ladder progress up to the
7-skill level, their job remains highly technical in nature. There is a mar-
ginal increase in supervisory functions from the 3/5-skill level to the
7-skill level, but the majority of their time is still spent maintaining,
operating, and inspecting equipment.

ANALYSIS OF AFR 39-1 SPECIALTY DESCRIPTIONS

     Occupational survey data for each of the DAFSC 118X0 skill-levels were
compared to the AFR 39-1 Specialty Descriptions, dated 1 February 1988, for
the Airborne Computer System Specialty. These descriptions are intended to
give a broad overview of the duties and tasks performed by each skill-level of
the career ladder. There are two descriptions applicable to this study--one
describes the jobs of DAFSC 11810, 11830, and 11850 and the other describes
the jobs of the DAFSC 11870.

     Based on the preceding DAFSC analysis, the 3-/5-skill level description
appears complete and accurately reflects the broad range of duties and respon-
sibilities of Airborne Computer Systems personnel. The 7-skill level descrip-
tion also appears complete and accurate, clearly indicating involvement with
not only the supervisory responsibilities, but the technical aspects of Air-
borne Computer Systems duties as well.

TRAINING ANALYSIS

     Occupational survey data provide several sources of information which can
be used to make training efforts more relevant. More specifically, these data
may be used to assist in the planning, development, reviewing, and evaluation
of various training programs and documents, such as the STS and POI. These
training efforts are relevant to personnel working in or training to work in
their first assignment. Some factors which may be used in the analysis
include percent of first enlistment (1-48 months TAFMS) personnel performing
tasks and TE ratings (as explained in the Task Factor Administration section).
These factors were used in reviewing the AFSC 118X0 STS and POIs for courses
E3AQR11830-001 and E3000 BQOMX based on the matching of inventory tasks to the
appropriate sections of the POIs and STS by experienced technical school per-
sonnel from Keesler Technical Training Center and 552d AWACS Training Wing,
Tinker AFB. A complete computer list displaying percent members performing
and TE ratings for each task, along with STS and POI matchings, has been for-
warded to the technical schools for use in further reviews of training docu-
ments. A summary of that information is presented below.

Training Emphasis

Training emphasis (TE) for each task in the inventory was assessed through ratings by 35 experienced Airborne Computer Systems Personnel. Data were processed to produce ordered listings of tasks in terms of recommended emphasis in training for first-term enlisted personnel. The average rating for all tasks included in the job inventory is 4.42, with a standard deviation of 2.39. Tasks receiving ratings of 6.81 or higher may be considered to have relatively high training emphasis. For a more complete description of these ratings, see the section on Task Factor Administration in the SURVEY METHODOLOGY to this report.

Examples of tasks rated highest in training emphasis are listed in Table 9. As can be seen, these tasks are primarily related to maintaining data processing systems, monitoring and operating electronic computer systems, and performing general in-flight tasks. These tasks have high TE ratings (6.81 or higher) and are performed by high percentages of first-enlistment personnel.

First-Enlistment Personnel

In addition to the analysis of tasks and jobs across skill-level groups, it is also important to analyze jobs and tasks as they relate to experience in the career ladder. First-enlistment personnel are of particular interest in terms of training implications.

All first-enlistment personnel are members of the CDMT job cluster. The majority of their time (62 percent) is split among the four duties of Maintaining Data Processing Systems (23 percent), Maintaining Data Display Systems (16 percent), Performing Preflight Inspections or Procedures (12 percent), and Performing General In-flight Tasks (11 percent). Since the first enlistment group is the target population for initial skill training, determining the tasks they perform is most important. Table 10 provides tasks commonly performed by airman within their first enlistment (1-48 months TAFMS). Common tasks include: performing MTT tape loading procedures, performing preflight inspections, monitoring emergency warning indicators, and loading and operating DMP.

Specialty Training Standard (STS)

During the course of this analysis, technical school personnel from the 3300th Technical Training Wing at Keesler AFB MS, and the 552 AWACW, Tinker AFB OK matched inventory tasks to the current STS. Utilizing the results of the matched data, a review of STS 118X0 dated May 1987, was conducted. STS elements containing performance were carefully considered.

Overall, the STS provides comprehensive coverage of the work performed by personnel in the field, with survey data supporting the significant paragraphs and subparagraphs. Generally, technical tasks matched to elements of the STS showed high percentages of first-enlistment and 5- and 7-skill level personnel

TABLE 9

EXAMPLES OF TASKS RATED HIGHEST IN TRAINING EMPHASIS (TE)

TASKS		TNG EMP*	PERCENT MEMBERS PERFORMING	
			1ST JOB (N=8)	1ST ENL (N=46)
F156	PERFORM AIRCREW EMERGENCY PROCEDURES	8.00	100	100
J286	LOAD AND OPERATE DMP	7.65	100	100
J285	LOAD AND OPERATE CPS DMP	7.51	100	100
G172	LOAD AND OPERATE AIRBORNE OPERATIONAL COMPUTER PROGRAMS	7.46	100	100
G181	MONITOR EMERGENCY WARNING INDICATORS	7.29	100	100
F146	INTERPRET PROGRAM WAIT STATE CODES, COMMUNICATION PACKETS (COMPACS), OR OTHER PROGRAM DATA FOR FAULT ISOLATION	7.17	87	98
G170	DISCRIMINATE BETWEEN HARDWARE AND SOFTWARE FAILURES	7.11	100	98
F144	INTERPRET ON-LINE STATUS INDICATIONS FOR FAULT ISOLATION	7.00	87	98
J248	DETECT FAULTS WITHIN CPS USING OFF-LINE CPS/DMP	7.00	100	100
F151	LOAD PROGRAMS USING MAGNETIC TAPES	6.94	100	100
F149	LOAD PROGRAMS USING DIGITAL DISPLAY INDICATOR (DDI) AND KEYBOARD	6.91	100	98
J237	DETECT FAULTS WITHIN CAU USING OFF-LINE DMP	6.91	100	98
G182	MONITOR OPERATOR COMPUTER CONSOLE (OCC)	6.89	100	100
H205	REVIEW, ANNOTATE, OR INITIATE AIRCRAFT FLIGHT OR MAINTENANCE RECORD FORMS, SUCH AS AFTO FORMS 781 SERIES	6.89	100	98
J232	DETECT DCR FAULTS USING OFF-LINE DIAGNOSTIC MAINTENANCE PROGRAM (DMP)	6.89	100	100
J231	DETECT DIGITAL COMPUTER RACK (DCR) FAULTS USING IN-FLIGHT PERFORMANCE PROGRAM (IFPP)	6.86	100	98
J233	DETECT DCR FAULTS USING OPERATOR COMPUTER CONTROL (OCC)	6.86	87	98
J234	DETECT DCR FAULTS USING VISUAL FAULT INDICATORS	6.83	100	98
J235	DETECT FAULTS WITHIN COMPUTER ARITHMETIC UNITS (CAU) USING IFPP	6.83	100	100
F150	LOAD PROGRAMS USING MAGNETIC DRUMS	6.80	100	98
J262	DETECT FAULTS WITHIN PERIPHERAL RACK I USING IFPP	6.80	100	98
E122	MAINTAIN MISSION LOGS, SUCH AS TAPE LOGS, COMPUTER LOGS, AND ONBOARD MONITOR AND MAINTENANCE (OBTM&M) LOGS	6.77	87	87
J245	DETECT FAULTS WITHIN CMU USING OFF-LINE DMP	6.77	87	98
J253	DETECT FAULTS WITHIN DMX USING OFF-LINE DMP	6.77	100	100
J261	DETECT FAULTS WITHIN OCC PANEL USING VISUAL INDICATORS	6.77	100	93

TABLE 10

EXAMPLES OF TASKS PERFORMED BY
FIRST-ENLISTMENT (1-48 MONTHS TAFMS) PERSONNEL
(N=46)

TASKS		PERCENT MEMBERS PERFORMING
I222	PERFORM PREFLIGHT INSPECTIONS OF OPERATOR COMPUTER CONTROL (OCC)	100
G182	MONITOR OPERATOR COMPUTER CONSOLE (OCC)	100
F151	LOAD PROGRAMS USING MAGNETIC TAPES	100
F160	PERFORM MTT TAPE LOADING PROCEDURES	100
J285	LOAD AND OPERATE CPS DMP	100
I220	PERFORM PREFLIGHT INSPECTIONS OF MAGNETIC TAPE TRANSPORT (MTT) AND LINE PRINTER (LP)	100
I229	SECURE MAGNETIC TAPE CASES ON AIRCRAFT	100
I213	PERFORM PREFLIGHT INSPECTIONS OF DIGITAL DISPLAY INDICATOR (DDI)	100
G180	MONITOR DIGITAL DISPLAY INDICATOR (DDI)	100
H194	INVENTORY MISSION SOFTWARE	100
F155	OPERATE HARDWARE AND SOFTWARE WITHIN LIMITATIONS	100
I225	PERFORM PREFLIGHT INSPECTIONS OF PERIPHERAL RACK I	100
I226	PERFORM PREFLIGHT INSPECTIONS OF PERIPHERAL RACK II	100
H201	PERFORM MISSION PLANNING	100
H197	PARTICIPATE IN MISSION PLANNING MEETINGS	100
H202	PERFORM PREMISSION REQUIREMENTS, SUCH AS REVIEWING FLIGHT CREW INFORMATION FILE (FCIF) & ANNOTATING FLIGHT ORDERS	100
H191	DEBRIEF GROUND MAINTENANCE PERSONNEL	100
K299	CLEAN SDC SWITCHES	100
H192	EXAMINE HISTORICAL DATA FOR RECURRING EQUIPMENT PROBLEMS	100
I227	PERFORM PREFLIGHT INSPECTIONS OF SITUATION DISPLAY CONSOLE (SDC)	100
I218	PERFORM PREFLIGHT INSPECTIONS OF IN-FLIGHT SPARES, TECHNICAL ORDERS, AND TEMPLATES	100
I212	PERFORM PREFLIGHT INSPECTIONS OF DIGITAL COMPUTER RACK (DCR)	100
I224	PERFORM PREFLIGHT INSPECTIONS OF P-67 CIRCUIT BREAKER PANELS	100
I223	PERFORM PREFLIGHT INSPECTIONS OF OXYGEN AND SPECIAL AUDIO DISTRIBUTION SYSTEM PANELS	100
F156	PERFORM AIRCREW EMERGENCY PROCEDURES	100
G181	MONITOR EMERGENCY WARNING INDICATORS	100

performing those tasks. First-enlistment personnel tended to have a consistently higher percentage of members performing those tasks, followed by 5-skill level personnel. There are two paragraphs of the STS (3f, Report Safety Hazards and 5a(8), Participate in USAF Graduate Evaluation Program) which, on the surface, do not appear to be adequately supported due to less than 20 percent members of the criterion groups (first term, 5-, and 7-skill levels) performing matched tasks (see Table 11). Closer examination of these nonsupported areas reveals that they may not cover the purely technical aspects of the career ladder, but are performed by personnel within the AFSC 118X0 career ladder. Low percent members performing matched tasks, in this case, may be because the few tasks involved are the responsibilities of a limited number of upper ranking personnel and are not done by first-enlistment personnel. Therefore, these areas may most likely be appropriate for inclusion in the STS.

In addition to reviewing those STS paragraphs which are not supported, training development personnel should also review tasks not referenced to the STS, but which have more than 20 percent members performing and relatively high TE ratings (see Table 12). There are 26 tasks not referenced to the STS. Only 21 are performed by 20 percent or more of the criterion group and none have high TE ratings. These nonreferenced tasks are related to Performing General Administrative and Supply Tasks, Monitoring and Operating Electronic Computer Systems, Maintaining Data Processing System, and Management and Supervision. Nonreferenced tasks should be reviewed by training managers and a decision made as to whether or not they should be covered by this STS.

Plan of Instruction (POI)

The initial training program for the Airborne Computer Systems personnel is divided into three courses: Apprentice Electronic Computer and Switching Systems and Airborne Computer Systems course (29.2 weeks in length and taught at Keesler AFB MS); Air Survival course (10 days in length--taught at Sheppard AFB TX); and Computer Display Maintenance--E3000 BQOMX (13.4 weeks in length and taught at Tinker AFB OK). The Air Survival course is a general course available to all aircrew personnel; therefore, no analysis of this course was conducted. The POI analysis for our purpose will focus on the two remaining technical courses. These courses make up a basic training program intended to train personnel new to this career ladder. Instructions include: Electronic Principles, Electronic Computer Switching Systems (ABN Computer Systems), Airborne Computer Systems, and computer display maintenance.

The current POIs for initial training of DAFSC 118X0 respondents were examined. Based on the assistance from experienced technical school subject-matter specialists, a matching of inventory tasks to each POI was accomplished, and computer products were generated displaying the results of the matching process. Data include TE ratings and percent members performing data for first-job (1-24 months TAFMS) and first-enlistment (1-48 months TAFMS) personnel.

TABLE 11

STS ELEMENTS REFLECTING LOW PERCENT MEMBERS PERFORMING
(LESS THAN 20 PERCENT MEMBERS PERFORMING)

				PERCENT PERFORMING		
		TNG EMP	1ST JOB	1ST ENL	11850	11870
3f. REPORT SAFETY HAZARDS	1b/-					
E106 COMPLETE ACCIDENT REPORT FORMS		1.29	0	0	6	5
E107 COMPLETE AF FORMS 457 (USAF HAZARD REPORT)		2.77	0	2	8	12
5a(8). PARTICIPATE IN THE USAF GRADUATE EVALUATION PROGRAM -						
C62 PARTICIPATE IN USAF GRADUATE EVALUATION PROGRAM		.71	0	4	8	12

TABLE 12

EXAMPLES OF TASKS NOT REFERENCED TO STS 118X0
(PERCENT MEMBERS PERFORMING)

TASKS	PERCENT MEMBERS PERFORMING				
	FIRST JOB (N=8)	FIRST ENLIST (N=46)	DAFSC 11850 (N=48)	DAFSC 11870 (N=41)	TNG EMP*
A4 COORDINATE JOB REQUIREMENTS WITH OTHER SECTIONS	0	15	40	54	1.34
E128 MAKE ENTRIES ON SIMULATOR OPERATION LOGS	13	11	19	41	2.00
G174 LOAD AND OPERATE DRUM INITIALIZED OVERRIDE DATA TAPE (DIODT) UTILITY PROGRAMS	100	100	98	93	6.00
G184 MONITOR SPECIAL EQUIPMENT	75	87	77	71	3.86
J247 DETECT FAULTS WITHIN CONTROL POWER SUPPLY (CPS) USING IFPP	88	87	94	90	6.11
J256 DETECT FAULTS WITHIN MTT AND LINE PRINTER (LP) USING IFPP	100	93	96	95	6.23
O385 ACCOMPLISH MOBILITY PROCESSING CHECKLISTS	38	83	92	80	4.34
O386 DON AND DOFF CHEMICAL WARFARE PERSONAL PROTECTIVE CLOTHING	63	91	98	85	5.17
O387 FIRE WEAPONS, SUCH AS .38, .45, AND 9MM CALIBER HANDGUNS OR M-16 RIFLES	38	63	60	54	3.57
O388 MAINTAIN IMMUNIZATION RECORDS	75	91	94	95	5.03
O390 PACK INDIVIDUAL MOBILITY EQUIPMENT FOR DEPLOYMENTS	88	91	92	80	5.17
O392 PERFORM AIRCRAFT COCKING OR UNCOCKING PROCEDURES	50	89	100	98	5.86
O393 PERFORM ALERT AIRCRAFT CHANGEOVERS	13	70	85	63	4.74
O394 PERFORM ALERT CREW CHANGEOVERS	25	76	90	63	4.86
O395 PERFORM CARGO COURIER DUTIES	13	30	35	29	1.40
O397 PERFORM DECONTAMINATION PROCEDURES FOR CHEMICAL WARFARE AGENTS	38	61	67	68	4.20
O399 PERFORM STANDBY ALERT PROCEDURES	25	74	94	71	4.86
O400 PRACTICE ALERT (FAST) REACTION PROCEDURES	38	72	77	51	4.77
O401 PRACTICE ALERT FORCE EXERCISES	38	72	79	59	4.20

* Training emphasis (TE) has an average of 4.42 and a Standard Deviation of 2.39 (High TE = 6.81)

Basic Course 3AQR11830-001

The POI for course 3AQR11830 001, dated 11 January 1989, was reviewed using the aforementioned task data. Survey data generally supported course objectives (CO) requiring task performance of students. The complete results of the matching of tasks to POI objectives are presented in a separate computer printout (PRTMOD) within the training extract.

TAC Course E3000 BQOMX

The POI for TAC course E3000 BQOMX, dated November 1986, was also reviewed using tasks matched by operational and training personnel from the 552 AWACW at Tinker AFB OK, to the COs, as well as training emphasis and percent first-enlistment personnel performing information. The occupational survey data generally supported COs requiring task performance of students. This is a 13.4-weeks course designed to train career ladder personnel in computer display maintenance onboard the E-3A aircraft.

A majority of this portion of the training is conducted in the classroom. Upon completion of this portion, the hands-on training is aboard E-3A aircraft. This is an AFSC awarding TAC course. The course was reviewed for appropriateness of instruction based on the jobs and tasks performed by survey respondents. The complete results of the matching of tasks to POI E3000 BQOMX course objectives are also presented in a separate PRTMOD within the training extract.

Overall, occupational survey data generally supported COs requiring task performance. Although all of the areas having tasks matched to them were well supported, there are numerous knowledge-based objectives, having no tasks matched to them, which restrict the opportunity to evaluate them. It is recommended that training management personnel carefully review those objectives to determine if they are applicable to this course.

In addition to reviewing the course objectives for both 3AQR11830 and E3000 BQOMX courses, a careful review of tasks performed was also conducted. Two hundred forty-eight tasks were not referenced to either of the two basic courses. These tasks were related to virtually all areas of the career ladder. Some of the unreferenced tasks may be taught in OJT or in advanced courses; some are related to supervision while others are technical tasks. Examples of related tasks performed by 30 percent or more of the first-enlistment personnel are presented in Table 13. Ninety-three nonreferenced tasks are performed by 30 percent or more first-enlistment personnel. Only two are rated high in training emphasis, while 104 are rated above average. Training personnel are encouraged to review those tasks not referenced to POI 118X0 to determine whether it is most appropriate to cover those tasks in the basic courses or in some other form of training.

TABLE 13

EXAMPLES OF TASKS NOT REFERENCED TO POIs
(PERCENT MEMBERS PERFORMING)

TASKS		TE RATING	PERCENT MEMBERS PERFORMING	
			1ST JOB	1ST ENL
G170	DISCRIMINATE BETWEEN HARDWARE AND SOFTWARE FAILURES	7.11	100	98
G181	MONITOR EMERGENCY WARNING INDICATORS	7.29	100	100
J245	DETECT FAULTS WITHIN CMU USING OFF-LINE DMP	6.77	88	98
K317	DETECT FAULTS WITHIN SDC REFRESH CHANNELS USING VISUAL FAULT INDICATORS	6.77	50	80
N380	ISOLATE COOLING FAULTS TO E20/21 CABINET VALVE	6.77	63	78
H202	PERFORM PREMISSION REQUIREMENTS, SUCH AS REVIEWING FLIGHT CREW INFORMATION FILE (FCIF) & ANNOTATING FLIGHT ORDERS	6.74	100	100
N381	ISOLATE COOLING FAULTS TO E22 CABINET VALVE	6.74	63	78
N382	ISOLATE COOLING FAULTS TO E23 CABINET VALVE	6.74	63	78
N378	ISOLATE COOLING FAULTS TO CPS	6.69	75	78
H192	EXAMINE HISTORICAL DATA FOR RECURRING EQUIPMENT PROBLEMS	6.63	100	100
K299	CLEAN SDC SWITCHES	6.63	100	100
K321	DETECT FAULTS WITHIN SDC USING VISUAL FAULT INDICATORS	6.63	75	91
K324	ISOLATE FAULTS TO DP	6.63	88	91
G179	MONITOR COOLING INDICATORS	6.57	100	96
N379	ISOLATE COOLING FAULTS TO DDI OR SDC	6.57	75	85
N383	ISOLATE COOKING FAULTS WITHIN DRAW-THRU COOLING AIR SYSTEM	6.57	63	78
H203	PROCURE MISSION SOFTWARE	6.51	100	98
J274	ISOLATE FAULTS WITHIN CCA/CCB TO FAILING MDS CONTROLLERS	6.49	75	87
J275	ISOLATE FAULTS WITHIN CCA/CCB TO FAILING MTT CONTROLLERS	6.49	75	89
H191	DEBRIEF GROUND MAINTENANCE PERSONNEL	6.43	100	100
H201	PERFORM MISSION PLANNING	6.43	100	100
K303	DETECT FAULTS WITHIN DDI USING DDI PRESENTATIONS, OTHER THAN VISUAL FAULT INDICATORS	6.40	50	78
N384	ISOLATE COOLING FAULTS WITHIN FORWARD FORCED AIR COOLING SYSTEM	6.40	63	83

Average TE = 4.42; SD = 2.39

ANALYSIS OF CONUS VERSUS OVERSEAS GROUPS

A comparison was made between the tasks performed and the background data for the DAFSC 11850 personnel who were assigned within the CONUS versus those who were assigned to overseas locations. Overall, the jobs performed by the two groups are very similar with respect to the tasks performed and the time spent on those tasks. The average number of tasks performed by CONUS and overseas personnel are similar (280 vs 278, respectively).

A comparison of the background data (see Table 14) reveals that a slightly larger percentage of CONUS personnel were in their first enlistment (41 percent versus 31 percent), while overseas personnel have more time in the career field (47 months--CONUS and 53 months--overseas) and in the military (63 months--CONUS and 73 months--overseas). Overall, only minor differences were identified between the role of CONUS and overseas personnel.

JOB SATISFACTION

To provide functional managers within the AFSC 118X0 career ladder with a better understanding of factors which may affect the job performance of AFSC 118X0 airmen, an analysis of job satisfaction data was conducted. These data were gathered through the use of four inventory questions covering job interest, perceived utilization of talents and training, and reenlistment intentions.

Table 15 presents job satisfaction data for TAFMS groups. Overall, job satisfaction indicators are satisfactory. When compared to a comparative sample of similar personnel surveyed in 1988, job satisfaction indicators are, in most cases, equal to or slightly higher for AFSC 118X0 personnel in most categories. The one exception is reenlistment intentions which are slightly lower for the first- and second-enlistment groups. Being assigned to the more routine functions was stated to be the most probable cause for the decline in desire to reenlist.

A comparison of job satisfaction indicators for CONUS and overseas groups indicate that these two groups have similar perceptions about their jobs. Generally, job satisfaction indicators are high for job interest, and utilization of talents and training. Reenlistment intentions are also high (81 percent) for CONUS personnel; however, those rates are just above average for similarly situated personnel assigned to overseas locations.

TABLE 14

COMPARISON OF BACKGROUND AND JOB SATISFACTION INFORMATION
FOR DAFSC 11850 CONUS AND OVERSEAS PERSONNEL

	CONUS PERSONNEL (N=32)	OVERSEAS PERSONNEL (N=13)
AVERAGE NUMBER OF TASKS PERFORMED:	280	278
AVERAGE MONTHS TICF:	47	53
AVERAGE MONTHS TAFMS:	63	73
PERCENT FIRST ENLISTMENT:	41	31
JOB SATISFACTION DATA:		
PERCENT FINDING THEIR JOB INTERESTING:	91	100
PERCENT PERCEIVING THEIR TALENTS ARE UTILIZED AT LEAST FAIRLY WELL:	91	85
PERCENT PERCEIVING THEIR TRAINING IS UTILIZED AT LEAST FAIRLY WELL:	88	92
PERCENT PLANNING TO REENLIST:	81	54

TABLE 15

COMPARISON OF JOB SATISFACTION INDICATORS BY TAFMS GROUPS
(PERCENT MEMBERS RESPONDING)*

	1-48 MONTHS TAFMS		49-96 MONTHS TAFMS		97+ MONTHS TAFMS	
	118X0 (N=46)	COMP SAMPLE** (N=14)	118X0 (N=25)	COMP SAMPLE (N=27)	118X0 (N=47)	COMP SAMPLE (N=58)
EXPRESSED JOB INTEREST:						
INTERESTING	85	86	88	82	88	75
SO-SO	13	7	4	11	4	15
DULL	2	7	8	4	8	10
PERCEIVED UTILATION OF TALENTS:						
FAIRLY WELL TO PERFECTLY	89	71	88	78	85	76
LITTLE OR NOT AT ALL	11	29	12	22	15	24
PERCEIVED UTILIZATION OF TRAINING:						
FAIRLY WELL TO PERFECTLY	87	93	88	85	83	89
LITTLE OR NOT AT ALL	13	7	12	11	17	21
REENLISTMENT INTENTIONS:						
YES, OR PROBABLY YES	74	93	60	78	85	81
NO, OR PROBABLY NO	26	7	40	22	9	5
PLAN TO RETIRE	0	0	0	0	6	14

* Columns may not add to 100 percent due to nonresponse or rounding
** Includes Aircrew AFSC 118X1 surveyed in 1988

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IMPLICATIONS

The results of this OSR indicate that, overall, the Airborne Computer Systems career ladder has been relatively stable since its creation in October 1984. This career ladder emerged from AFSC 305X4 T-shred. Most of the functions of the previous AFSC were transferred to the current AFSC 118X0 career ladder. The job structure analysis identified a homogeneous aircrew career ladder. Only one major cluster with two variations was identified in the job structure analysis, which clearly indicates that one main job is performed by Airborne Computer Systems personnel.

CONUS and overseas personnel are performing essentially the same jobs. Job satisfaction indicators are generally satisfactory and the AFR 39-1 specialty descriptions are broad, accurate, and complete.

Survey data generally support the current STS; however, two areas are not supported by OSR data and several tasks are unreferenced. These elements and unreferenced tasks should be reviewed for possible inclusion. The POIs were also generally supported by OSR data; however, there are several unreferenced tasks. These unreferenced tasks should also be examined to determine if they should be covered in this document.

APPENDIX A

TABLE A1

REPRESENTATIVE TASKS PERFORMED BY COMPUTER
DISPLAY MAINTENANCE PERSONNEL (STG002, N=117)

TASKS		PERCENT MEMBERS PERFORMING
G182	MONITOR OPERATOR COMPUTER CONSOLE (OCC)	100
F160	PERFORM MTT TAPE LOADING PROCEDURES	100
F155	OPERATE HARDWARE AND SOFTWARE WITHIN LIMITATIONS	100
G180	MONITOR DIGITAL DISPLAY INDICATOR (DDI)	100
F151	LOAD PROGRAMS USING MAGNETIC TAPES	100
G181	MONITOR EMERGENCY WARNING INDICATORS	100
H201	PERFORM MISSION PLANNING	100
H192	EXAMINE HISTORICAL DATA FOR RECURRING EQUIPMENT PROBLEMS	100
H194	INVENTORY MISSION SOFTWARE	100
H191	DEBRIEF GROUND MAINTENANCE PERSONNEL	100
I227	PERFORM PREFLIGHT INSPECTIONS OF SITUATION DISPLAY CONSOLES (SDC)	100
H202	PERFORM PREMISSION REQUIREMENTS, SUCH AS REVIEWING FLIGHT CREW INFORMATION FLIGHT (FCIF) & ANNOTATING FLIGHT ORDERS	100
J286	LOAD AND OPERATE DMP	100
F140	COORDINATE COMPUTER STATUS WITH MISSION CREW	100
J285	LOAD AND OPERATE CPS DMP	100
I229	SECURE MAGNETIC TAPE CASES ON AIRCRAFT	100
I220	PERFORM PREFLIGHT INSPECTIONS OF MAGNETIC TAPE TRANSPORT	100
I226	PERFORM PREFLIGHT INSPECTIONS OF PERIPHERAL RACK II	100
I230	SECURE PERSONAL EQUIPMENT ON AIRCRAFT	100
I225	PERFORM PREFLIGHT INSPECTIONS OF PERIPHERAL RACK I	100
I222	PERFORM PREFLIGHT INSPECTIONS OF OPERATOR COMPUTER	100
I224	PERFORM PREFLIGHT INSPECTIONS OF P-67 CIRCUIT BREAKER	100
I228	PERFORM VISUAL INSPECTIONS OF CABLES OR CONNECTOR AIR	100
I213	PERFORM PREFLIGHT INSPECTIONS OF DIGITAL DISPLAY	100
I208	PERFORM PREFLIGHT INSPECTIONS OF CONTROL POWER SUPPLY	100
I209	PERFORM PREFLIGHT INSPECTIONS OF COOLING SYSTEM	100
F139	CLEAN MAGNETIC TAPE TRANSPORT (MTT) CONTACT SURFACES	100
I221	PERFORM PREFLIGHT INSPECTIONS OF MTT-3 DIRECT LOAD CABLE	100
J235	DETECT FAULTS WITHIN COMPUTER ARITHMETIC UNITS (CAU)	100
F156	PERFORM AIRCREW EMERGENCY PROCEDURES	100
J251	DETECT FAULTS WITHIN DIGITAL MULTIPLEXER UNITS (DMX)	100
J232	DETECT DCR FAULTS USING OFF-LINE DIAGNOSTIC MAINTENANCE	100
J258	DETECT FAULTS WITHIN MTT AND LP USING OFF-LINE DMP	100
G172	LOAD AND OPERATE AIRBORNE OPERATIONAL COMPUTER PROGRAMS	99
K299	CLEAN SDC SWITCHES	99
F146	INTERPRET PROGRAM WAIT STATE CODES, COMMUNICATION PACKETS (COMPACS), OR OTHER PROGRAM DATA FOR FAULT ISOLATION	99
G170	DISCRIMINATE BETWEEN HARDWARE AND SOFTWARE FAILURES	99
F147	INTERPRET VISUAL FAULT INDICATORS FOR FAULT ISOLATION	99
G188	OPERATE OCC PANEL	99
H195	OBTAIN OR TURN IN MISSION SOFTWARE AND SUPPORT DOCUMENTS	99
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